circuit repetitively charges the capacitor during a plurality of cycles and during each such cycle that circuitry alters a capacitor charging parameter in response to at least one feedback signal from the feedback circuit so as to produce the specified candela output at the light source.

REMARKS

Responding to the outstanding Office Action, the objection to the specification, namely the reference on page 12, line 9, to "lines 60-66" it is believed would be understood by those of skill in the art from a review of Fig. 9. In Fig. 9, the identification numerals 60-66 are clearly illustrated at the right edge of the graph thereof and associated with respective horizontal lines extending across the graph indicative of various output intensities. Hence, it is believed that the reference on page 12, line 9, would not be confusing. OK

With respect to the rejections pursuant to 35 USC 112 of claims 20-36, it is submitted that the "step of responding to an applied source of energy which varies over a nominal range by 100%" from claim 20, as well as 21-36 which depend on claim 20 is described in the application starting at least line 8, page 9 of the application and extending through page 12, line 19 and referring on page 12 to the graph of Fig. 9. The graph of Fig. 9 clearly illustrates automatically altering bulb voltage as a function of on-time for different intensities and also for different applied voltages. Hence, relative to Fig. 9, line 62 illustrates that for an eight volt input, an on-time in excess of 130 microseconds is required. On the other hand, in the presence of a 33 volt input, an on-time slightly more than 10 microseconds is required. It is submitted that one of skill would understand from reviewing claim 9 as well as the text of the specification including the noted section therein how to carry out the method of claims 20-36. It is requested that the rejection pursuant to 35 USC 112, first paragraph, be withdrawn.

Turning to the rejections of various of the claims as anticipated by Kosich 6,311,021, it is submitted that for the following reasons, ~~Kosich does not anticipate~~ the noted claims.

We first note that Kosich is unlike the claimed invention in that the structure thereof is capable of operating only over a single limited voltage range 20-31 volts or at 12 volts. Additionally, Kosich discloses an open loop charging system whose parameters are electromechanically established using switch SW1. The charging parameters are not established by microprocessor U1 of Kosich. Rather, the combination of resistors, inductor and capacitor

bull shit

where?

value as set by switch by SW1 establishes these values on an open loop basis. A trigger signal, which could be periodic such as every one second, arrives as the strobe is triggered without processor U1 reading or sensing the voltage before triggering. Processor U1 only senses voltage in the strobe of Kosich after a triggering event to determine that there is no over-voltage condition present.

Unlike Kosich, embodiments of the present invention not only can operate over multiple voltage input ranges, such strobes are implemented as closed loop control systems. In such embodiments, control circuitry is continually monitoring feedback voltage of the primary energy storage capacitor. Feedback signals are used by the control circuitry, for example by executing pre-stored instructions, to adjust a charging rate.

Claims 10-19 cannot be anticipated by Kosich in that claim 10 requires:

> "input terminals for receipt of voltages in a range of 10-30 volts".

As correctly noted by the Examiner, the system of Kosich "is generally powered by a supply voltage of 12 volts or 20-31 volts" (col. 2, lines 43-44). It is submitted that there is a substantial difference between the claimed range and the disclosure in Kosich of being able to use either a singular voltage, namely "12 volts" or a narrow range namely "20-31" volts. This is a teaching which is not substantially identical to the limitation of claim 10 as well as the dependent claims. As such, Kosich does not anticipate any of claims 10-19 for at least the above reasons.

Claims which depend from claim 10 add further limitations not suggested, disclosed or made obvious by Kosich. For example, claim 15 requires:

> "the processor executes pre-stored instructions for altering a charging rate of the capacitor in response to a selected output parameter."

As noted above, Kosich discloses a different kind of a structure. In Kosich, an open loop charging circuit is disclosed wherein the setting of switch SW1 selects an inductive value off of inductor L1. This is a manually settable selection process completely independent of the control

circuitry 100 of Kosich. This combination of selected inductor value, hardwired resistor and capacitor establish a charging rate for the capacitor quite independent of Kosich's processor. Hence, for at least these additional reasons, neither claim 15 nor claims depend thereon are anticipated by Kosich.

Neither amended claims 62 nor claims 63-67 which depend thereon are anticipated by Kosich.

Claim 62 includes the following limitation not met by Kosich:

> "wherein the control circuitry is responsive to receive levels of electrical energy varying over at least 8-30 volts to provide the specified output of illumination, and wherein the control circuitry initiates each charging cycle by step-wise increasing a capacitor charging duty cycle parameter on a predetermined basis prior to altering that parameter in response to a feedback signal from the capacitor."

It is submitted that the above limitations are not met by Kosich. Kosich, col. 2, lines 43, 44 only operates over a 20-31 volt range or at a 12 volt value. This is inconsistent with the wording of claim 62 and its dependent claims. Additionally, the description referred to, col. 6, lines 15-53 simply does not disclose the claimed charging cycle. Kosich appears to be an open loop charging system based on the setting of switch SW1. It does not appear to provide feedback to the control circuitry therein to adjust charging characteristics other than for checking for an over-voltage after flash tube DS1 was supposed to have fired. (Kosich, col. 6, ll. 23-25). The over-voltage checking disclosed by Kosich is inconsistent with and different from the claimed structure.

For at least the above reasons, none of claims 62-67 are anticipated by Kosich.

In connection with the rejection of pending claims 68-75 by Kosich, we note that in rejecting claim 71, incorporated into amended claim 68, the Examiner noted:

> "Kosich discloses that the processor (U1) executes pre-stored instructions for altering a charging rate of the capacitor (e.g. increments of energy) in response to

> a selected output parameter (e.g. 15, 30, 75, 110 candela) (see col. 5, line 51 to col. 6, line 14)."

It is submitted that the teaching of Kosich in the noted section is not in accordance with the claimed limitation. In Kosich the output light level is established by the setting of switch SW1 in combination with optical coupler 42 and selected resistor values. but setting

The switching of transistor Q4 which determines the rate at which increments of energy are transferred from inductor L1 to capacitor C9 is:

> "determined by the switching characteristics of the opticoupler U2, the values of the resistors R10, R11, R7, R36, R35, and R37, the value of inductor L1 depending on the setting of switch SW1 and voltage of the DC source" (col. 5, lines 53-57).

The above process is quite apart from the operation of the microcomputer U1 in Kosich. It is a different electronic structure which operates on an open loop basis in response to hardwired settings of various elements as established by switch SW1. This is different from and does not anticipate any of pending claims 68-75. In addition, Kosich teaches operating over only a singular input voltage range of 20-31 volts, unlike the claimed structure. It is believed that earlier amendments have obviated the rejections relative to claims 84 and 86.

Claim 91, as amended hereby, is not anticipated by Kosich in that Kosich only discloses a system operable in a 20-31 volt range and at 12 volts. This is different from and does not anticipate the claim 90 as amended.

For all of the above reasons, it is believed that the pending claims are allowable. Allowance of the application is respectfully requested.

A marked copy of the amended claims is attached.

Respectfully submitted,

WELSH & KATZ, LTD.

BY:________________________________
Paul M. Vargo, Reg. No. 29,116

120 South Riverside Plaza
22nd Floor
Chicago, Illinois 60606
Phone: 312-655-1500-401
Fax: 312-655-1501

Marked Version of the Amended Claims

68. (Twice amended) A strobe comprising:

a housing;

a light source;

a capacitor coupled to the source;

a candela specifying element;

input terminals for receipt of voltages in ranges of both [one of a range of] 8-18 volts and [or] 16-33 volts; [and]

control circuitry, carried in the housing coupled at least to the capacitor, and the specifying element and instructions for charging the capacitor in a closed control loop in accordance with the specifying element and received voltage to drive the source to produce the specified candela; and

wherein the processor executes pre-stored instructions for altering a charging rate of the capacitor in response to a selected candela output parameter.

Please cancel claim 71 without prejudice.

Please amend claim 72 as follows:

72. (Amended) A strobe as in claim 68 [71] wherein the control circuitry illuminates the source, at least at a first predetermined rate, and wherein the instructions alter the charging rate between illuminations.

84. (Amended) A strobe comprising:

a housing;

a light source;

a capacitor coupled to the source;

a candela specifying element;

input terminals for receipt of voltages in one of a range of 8-17 volts or 16-33 volts;

control circuitry, carried in the housing, coupled at least to the specifying element and a feedback circuit, the feedback circuit is also coupled to the capacitor wherein the control

circuit alters a capacitor charging parameter in response to at least one feedback signal from the feedback circuit so as to produce the specified candela output at the light source; and

wherein the at least one feedback signal comprises one of a digitized capacitor voltage value or a selected signal transition indicative of a capacitor voltage.

Please cancel claim 85 without prejudice.

87. (Amended) [A strobe as in claim 86] A strobe comprising:

a housing;

a light source;

a capacitor coupled to the source;

a candela specifying element;

input terminals for receipt of voltages in one of a range of 8-17 volts or 16-33 volts;

control circuitry, carried in the housing, coupled at least to the specifying element and a feedback circuit, the feedback circuit is also coupled to the capacitor wherein the control circuit alters a capacitor charging parameter in response to at least one feedback signal from the feedback circuit so as to produce the specified candela output at the light source;

capacitor drive circuitry coupled between the control circuitry and the capacitor; and

wherein the drive circuitry alters a capacitor charging current duty cycle in response to the control circuitry.

88. (Amended) [A strobe as in claim 86] A strobe comprising:

a housing;

a light source;

a capacitor coupled to the source;

a candela specifying element;

input terminals for receipt of voltages in one of a range of 8-17 volts or 16-33 volts;

control circuitry, carried in the housing, coupled at least to the specifying element and a feedback circuit, the feedback circuit is also coupled to the capacitor wherein the control

circuit alters a capacitor charging parameter in response to at least one feedback signal from the feedback circuit so as to produce the specified candela output at the light source;

capacitor drive circuitry coupled between the control circuitry and the capacitor; and

wherein the drive circuitry includes a constant frequency, variable duty cycle capacitor charging current generator coupled to the control circuitry and to the capacitor wherein the control circuitry varies the charging current duty cycle in response to both the feedback signal and the candela specifying element.

89. (Amended) [A strobe as in claim 86] A strobe comprising:

a housing;

a light source;

a capacitor coupled to the source;

a candela specifying element;

input terminals for receipt of voltages in one of a range of 8-17 volts or 16-33 volts;

control circuitry, carried in the housing, coupled at least to the specifying element and a feedback circuit, the feedback circuit is also coupled to the capacitor wherein the control circuit alters a capacitor charging parameter in response to at least one feedback signal from the feedback circuit so as to produce the specified candela output at the light source; and

wherein the duty cycle is adjusted periodically in response to the feedback signal.

90. (Amended) [A strobe as in claim 84] A strobe comprising:

a housing;

a light source;

a capacitor coupled to the source;

a candela specifying element;

input terminals for receipt of voltages in one of a range of 8-17 volts or 16-33 volts;

control circuitry, carried in the housing, coupled at least to the specifying element and a feedback circuit, the feedback circuit is also coupled to the capacitor wherein the control

circuit alters a capacitor charging parameter in response to at least one feedback signal from the feedback circuit so as to produce the specified candela output at the light source; and

wherein the control circuitry alters the charging current parameter periodically.

91. (Amended) A strobe comprising:

a housing;

a light source;

a capacitor coupled to the source;

a candela specifying element;

input terminals for receipt of voltages in [one of] a range of 8-17 volts [or] and a range of 16-33 volts;

control circuitry, carried in the housing, coupled at least to the specifying element and a feedback circuit, the feedback circuit is also coupled to the capacitor wherein the control circuit repetitively charges the capacitor during a plurality of cycles and during each such cycle that circuitry alters a capacitor charging parameter in response to at least one feedback signal from the feedback circuit so as to produce the specified candela output at the light source.